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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/875,248	06/05/2001	Yifeng Wu	10010937-1	7285

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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EXAMINER

LEE, TOMMY D

ART UNIT PAPER NUMBER

2624

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/875,248

Applicant(s)

WU, YIFENG

Examiner

Thomas D. Lee

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20030505.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Double Patenting

1. Applicant is advised that should claims 9-12 be found allowable, claims 16 (which, as depending from claim 15, includes all of the limitations of claim 15) and 17-19 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 6, 7, 13 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 6 and 13 each recite a step of "interpolating between the measured luminance and chrominance values based on defined reference values; and modifying color conversion parameters based on the interpolation." The only reference to an interpolating step in the specification appears at page 11, lines 17-26. But this so-called "interpolation" is merely a conversion between

Art Unit: 2624

different values, which is inconsistent with the claimed "interpolating between the measured luminance and chrominance values based on defined reference values ..."
language recited in the claims.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6, 9-11, 13, 15-18 and 20-24 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication US 2001/0033387 (Nogiwa et al.).

Regarding claims 1-6 and 13, Nogiwa et al. disclose a method for automatically calibrating a color printing device, the method comprising: performing a luminance calibration for at least one printing primary color (paragraphs [0072], [0073], [0078] – [0080], [0083], [0084], [0094], [0095]); and performing a combined luminance and chrominance calibration for at least one color comprising the at least one printing primary color (paragraphs [0072], [0073], [0078] – [0080], [0083], [0084], [0086] – [0090]). Performing the luminance calibration includes performing a linearization parameter calibration, which includes: printing primary printing color test patches on a print medium (paragraphs [0072] – [0075]); measuring a luminance value associated with the primary printing color test patches (paragraphs [0076] – [0078]); comparing the measured luminance value with a defined reference value (paragraph [0094]); and modifying at least one linearization parameter based on the comparison (paragraph

[0095]). The linearization parameter is operatively associated with a one-dimensional look-up table (paragraph [0107]). Performing the combined luminance and chrominance calibration includes performing a color conversion parameter calibration, which includes: printing color test patches on a print medium (paragraphs [0072] – [0075]); measuring luminance and chrominance values associated with the color test patches (paragraphs [0076] – [0078]); and modifying color conversion parameters (paragraphs [0084], [0087], [0088]). The color conversion parameter calibration includes: printing color test patches on a print medium (paragraphs [0072] – [0073]); measuring luminance and chrominance values associated with the color test patches (paragraphs [0076] – [0078]); “interpolating” between the measured luminance and chrominance values based on defined reference values (paragraph [0084]); and modifying color conversion parameters based on the “interpolation” (paragraphs [0087] – [0088]).

Regarding claims 9-11 and 15-18, Nogiwa et al. discloses a color printing device comprising: a color imaging module configured to generate selected print commands (paragraph [0060]); a print mechanism operatively coupled to the color imaging module and configurable to print different test color patches in response to the selected print commands (paragraphs [0072] – [0073]); and a color sensing mechanism operatively coupled to the print engine and operatively configured to measure luminance and chrominance values of the different test color pages (paragraphs [0076] – [0078]), and wherein the color imaging module is further configurable to be calibrated against a defined reference state by conducting: a luminance calibration based on a comparison

Art Unit: 2624

of the measured luminance and defined corresponding luminance reference values, and a combined luminance and chrominance calibration based on a comparison of the measured luminance and chrominance and defined corresponding combined luminance and chrominance reference values (paragraph [0084]). The color imaging module further includes: memory (paragraph [0083]); and logic operatively coupled to the memory and configured to: perform the luminance calibration such that at least one linearization parameter stored in the memory is modified (paragraphs [0094] – [0095]), and perform the combined luminance and chrominance calibration such that at least one color conversion parameter stored in the memory is modified (paragraphs [0087] – [0088]). The linearization parameter is maintained in a 1-dimensional look-up table (paragraph [0107]).

Claims 20-24 merely recite logic for performing the steps previously recited in claims 1-6. The method steps are disclosed in Nogiwa et al., as mentioned above; and logic for performing the method steps is inherently provided within the personal computer (paragraph [0060]) of Nogiwa et al.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7, 8, 12, 14, 19 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nogiwa et al.

First regarding claim 25, Nogiwa discloses a tiered calibration method for use in a color printing device, the method comprising: performing a first tier calibration based on measured luminance values from a test print, wherein if the measured luminance values are different than corresponding desired luminance values, then associated linearization parameters are modified to reduce the luminance value difference (paragraphs [0094], [0095]); and performing a second tier calibration based on measured luminance and chrominance values in a test print, wherein if the measured luminance and chrominance values are different than corresponding luminance and chrominance desired values, then associated color conversion parameters are modified to reduce the luminance and chrominance value differences (paragraphs [0084], [0087], [0088]).

Nogiwa et al. do not appear to disclose performing the second tier calibration in a *subsequent* test, as recited in claim 25, or the similar limitation of “performing the luminance calibration occurs *prior to* performing a combined luminance and chrominance calibration,” as recited in claim 8. However, whether performing one calibration before another calibration, as in applicant’s invention, or whether both calibrations is performed simultaneously, as apparently disclosed in Nogiwa et al., the same result is achieved. That is, calibration is performed with respect to single and mixed colors, thereby providing more accurate reproduction of colors. Applicant has not disclosed that performing the second tier calibration in a subsequent test provides an advantage, is used for a particular purpose or solves a stated problem. Therefore, it

Art Unit: 2624

would have been obvious for one of ordinary skill in the art to modify Nogiwa et al. by performing the first calibration prior to performing the second calibration.

Regarding claims 7, 12, 14 and 19, Nogiwa et al. do not appear to disclose a multi-dimensional look-up table for maintaining the color conversion parameter. However, multi-dimensional look-up tables are well known in the art for providing conversion of image data (Nogiwa provides a separate look-up tables for calibrating monochrome densities, as mentioned above). Providing a multi-dimensional look-up table would have been an obvious modification for one of ordinary skill in the art, since the color conversion parameter is based on a combination of a plurality of colors. And since it is well known that a look-up table eliminates the need for complicated mathematical operations to be performed, and thereby increases the speed of calibration, it would have been obvious for one of ordinary skill in the art to modify the teaching of Nogiwa et al. by providing a multi-dimensional look-up table for performing color conversion.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,483,360 (Rolleston et al.) discloses a color printer calibration with blended look up tables.

U.S. Patent 5,574,544 (Yoshino et al.) discloses an image forming apparatus having image density gradation correction means.

U.S. Patent 6,026,216 (Ohtsuka et al.) discloses a system for generating a proof.

Art Unit: 2624

U.S. Patent 6,668,077 (Ohkubo) discloses a color correcting relation extracting method and color correction method.

U.S. Patent RE38, 180 (Edge) discloses recalibration of a multi-color imaging system.

All of the above references disclose correction of an imaging system by measuring density or colorimetry values of color patches.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (703) 305-4870. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (703) 308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2624

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thomas D. Lee
Primary Examiner
Art Unit 2624

tdl
February 3, 2005